Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: July 19, 2001

LDC Report Date: August 15, 2001

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-4794

Sample Identification

ER-22
MW-8
MW-22-1
MW-22-2
MW-22-3
MW-22-4
MW-8MS
MW-8MSD

Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 314.0 for Perchlorate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 01-4794	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

Sample ER-22 was identified as an equipment rinsate. No contaminant concentrations were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 01-4794

SDG	Sample	Analyte	Flag	A or P	Reason
01-4794	ER-22 MW-8 MW-22-1 MW-22-2 MW-22-3 MW-22-4	Perchlorate	None	P	Initial calibration

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-4794

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-4794

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: July 5, 2001

LDC Report Date: August 16, 2001

Matrix: Water

Parameters: Wet Chemistry

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-4536

Sample Identification

MW-18-5
MW-18-4
MW-18-3
MW-18-2
ER-18
MW-18-5MS
MW-18-5MSD

Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 314.0 for Perchlorate and EPA SW 846 Method 7196 for Hexavalent Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 01-4536	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Wet Chemistry - Data Qualification Summary - SDG 01-4536

SDG	Sample	Analyte	Flag	A or P	Reason
01-4536	MW-18-5 MW-18-4 MW-18-3 MW-18-2 ER-18	Perchlorate	None	P	Initial calibration

JPL, 00HW019
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 01-4536

No Sample Data Qualified in this SDG

JPL, 00HW019
Wet Chemistry - Field Blank Data Qualification Summary - SDG 01-4536

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: July 31, 2001

LDC Report Date: August 23, 2001

Matrix: Water

Parameters: Hexavalent Chromium & Perchlorate

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-5020

Sample Identification

ER-23
MW-20-5
MW-23-5
MW-23-4
MW-23-3
MW-23-2
MW-23-1

Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7196 for Hexavalent Chromium and Method E314 for Perchlorate.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-23 MW-23-5 MW-23-4 MW-23-3 MW-23-2 MW-23-1	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

b. Calibration verification

Calibration verification frequency and analysis criteria were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No hexavalent chromium or perchlorate contaminants were found in the method blanks.

Sample ER-23 was identified as an equipment rinsate. No hexavalent chromium or perchlorate contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Hexavalent Chromium & Perchlorate - Data Qualification Summary - SDG 01-5020

SDG	Sample	Analyte	Flag	A or P	Reason
01-5020	ER-23 MW-23-5 MW-23-4 MW-23-3 MW-23-2 MW-23-1	Perchlorate	None	P	Initial calibration

JPL, 00HW019
Hexavalent Chromium & Perchlorate - Laboratory Blank Data Qualification Summary - SDG 01-5020

No Sample Data Qualified in this SDG

JPL, 00HW019
Hexavalent Chromium & Perchlorate - Field Blank Data Qualification Summary - SDG 01-5020

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: July 20, 2001

LDC Report Date: August 21, 2001

Matrix: Water

Parameters: Hexavalent Chromium & Perchlorate

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-4824

Sample Identification

ER-11
MW-11-1
MW-11-4
MW-11-3
MW-11-2
MW-11-2MS
MW-11-2MSD
ER-11MS
ER-11MSD

Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7196 for Hexavalent Chromium and Method E314 for Perchlorate.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-11 MW-11-1 MW-11-4 MW-11-3 MW-11-2 MW-11-2MS MW-11-2MSD	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

b. Calibration verification

Calibration verification frequency and analysis criteria were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No hexavalent chromium or perchlorate contaminants were found in the method blanks.

Sample ER-11 was identified as an equipment rinsate. No hexavalent chromium or perchlorate contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Hexavalent Chromium & Perchlorate - Data Qualification Summary - SDG 01-4824

SDG	Sample	Analyte	Flag	A or P	Reason
01-4824	ER-11 MW-11-1 MW-11-4 MW-11-3 MW-11-2	Perchlorate	None	P	Initial calibration

JPL, 00HW019
Hexavalent Chromium & Perchlorate - Laboratory Blank Data Qualification Summary - SDG 01-4824

No Sample Data Qualified in this SDG

JPL, 00HW019
Hexavalent Chromium & Perchlorate - Field Blank Data Qualification Summary - SDG 01-4824

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: July 25, 2001

LDC Report Date: August 23, 2001

Matrix: Water

Parameters: Hexavalent Chromium & Perchlorate

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-4919

Sample Identification

ER-12
MW-12-1
MW-12-5
MW-12-4
MW-12-3
MW-12-2
ER-12MS
ER-12MSD
MW-12-3MS
MW-12-3MSD

Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7196 for Hexavalent Chromium and Method E314 for Perchlorate.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-12 MW-12-1 MW-12-5 MW-12-4 MW-12-3 MW-12-2 MW-12-3MS MW-12-3MSD	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

b. Calibration verification

Calibration verification frequency and analysis criteria were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No hexavalent chromium or perchlorate contaminants were found in the method blanks.

Sample ER-12 was identified as an equipment rinsate. No hexavalent chromium or perchlorate contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Hexavalent Chromium & Perchlorate - Data Qualification Summary - SDG 01-4919

SDG	Sample	Analyte	Flag	A or P	Reason
01-4919	ER-12 MW-12-1 MW-12-5 MW-12-4 MW-12-3 MW-12-2	Perchlorate	None	P	Initial calibration

JPL, 00HW019
Hexavalent Chromium & Perchlorate - Laboratory Blank Data Qualification Summary - SDG 01-4919

No Sample Data Qualified in this SDG

JPL, 00HW019
Hexavalent Chromium & Perchlorate - Field Blank Data Qualification Summary - SDG 01-4919

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: July 26, 2001

LDC Report Date: August 23, 2001

Matrix: Water

Parameters: Hexavalent Chromium & Perchlorate

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-4946

Sample Identification

ER-24
FIELD BLANK
MW-24-4
MW-24-3
MW-24-3D
MW-24-2
MW-24-1
MW-24-2MS
MW-24-2MSD

Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7196 for Hexavalent Chromium and Method E314 for Perchlorate.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

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J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-24 FIELD BLANK MW-24-3 MW-24-3D MW-24-2 MW-24-1 MW-24-2MS MW-24-2MSD	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

b. Calibration verification

Calibration verification frequency and analysis criteria were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No hexavalent chromium or perchlorate contaminants were found in the method blanks.

Sample ER-24 was identified as an equipment rinsate. No hexavalent chromium or perchlorate contaminants were found in this blank.

Sample "FIELD BLANK" was identified as a field blank. No hexavalent chromium or perchlorate contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

Samples MW-24-3 and MW-24-3D were identified as field duplicates. No hexavalent chromium or perchlorate was detected in any of the samples.

JPL, 00HW019
Hexavalent Chromium & Perchlorate - Data Qualification Summary - SDG 01-4946

SDG	Sample	Analyte	Flag	A or P	Reason
01-4946	ER-24 FIELD BLANK MW-24-3 MW-24-3D MW-24-2 MW-24-1	Perchlorate	None	P	Initial calibration

JPL, 00HW019
Hexavalent Chromium & Perchlorate - Laboratory Blank Data Qualification Summary - SDG 01-4946

No Sample Data Qualified in this SDG

JPL, 00HW019
Hexavalent Chromium & Perchlorate - Field Blank Data Qualification Summary - SDG 01-4946

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: July 27, 2001

LDC Report Date: August 23, 2001

Matrix: Water

Parameters: Hexavalent Chromium & Perchlorate

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-4964

Sample Identification

ER-4
MW-4-1
MW-4-5
MW-4-4
MW-4-3
MW-4-2
ER-4MS
ER-4MSD

Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7196 for Hexavalent Chromium and Method E314 for Perchlorate.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
ER-4 MW-4-1 MW-4-3 MW-4-2	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

b. Calibration verification

Calibration verification frequency and analysis criteria were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No hexavalent chromium or perchlorate contaminants were found in the method blanks.

Sample ER-4 was identified as an equipment rinsate. No hexavalent chromium or perchlorate contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

No field duplicates were identified in this SDG.

JPL, 00HW019
Hexavalent Chromium & Perchlorate - Data Qualification Summary - SDG 01-4964

SDG	Sample	Analyte	Flag	A or P	Reason
01-4964	ER-4 MW-4-1 MW-4-3 MW-4-2	Perchlorate	None	P	Initial calibration

JPL, 00HW019
Hexavalent Chromium & Perchlorate - Laboratory Blank Data Qualification Summary - SDG 01-4964

No Sample Data Qualified in this SDG

JPL, 00HW019
Hexavalent Chromium & Perchlorate - Field Blank Data Qualification Summary - SDG 01-4964

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: July 30, 2001

LDC Report Date: August 23, 2001

Matrix: Water

Parameters: Hexavalent Chromium & Perchlorate

Validation Level: EPA Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 01-5003

Sample Identification

ER-14
MW-14-1
MW-14-5
MW-14-4
MW-14-3
MW-14-2
MW-14-2D
MW-14-3MS
MW-14-3MSD

Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 7196 for Hexavalent Chromium and Method E314 for Perchlorate.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the method stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VII.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
All samples in SDG 01-5003	Perchlorate	A blank was not used to establish the calibration curve.	A blank must be used to establish the calibration curve.	None	P

b. Calibration verification

Calibration verification frequency and analysis criteria were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No hexavalent chromium or perchlorate contaminants were found in the method blanks.

Sample ER-14 was identified as an equipment rinsate. No hexavalent chromium or perchlorate contaminants were found in this blank.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Sample Result Verification

All sample result verifications were within validation criteria.

VI. Overall Assessment of Data

Data flags are summarized at the end of this report.

VII. Field Duplicates

Samples MW-14-2 and MW-14-2D were identified as field duplicates. No hexavalent chromium or perchlorate was detected in any of the samples.

JPL, 00HW019
Hexavalent Chromium & Perchlorate - Data Qualification Summary - SDG 01-5003

SDG	Sample	Analyte	Flag	A or P	Reason
01-5003	ER-14 MW-14-1 MW-14-5 MW-14-4 MW-14-3 MW-14-2 MW-14-2D	Perchlorate	None	P	Initial calibration

JPL, 00HW019
Hexavalent Chromium & Perchlorate - Laboratory Blank Data Qualification Summary - SDG 01-5003

No Sample Data Qualified in this SDG

JPL, 00HW019
Hexavalent Chromium & Perchlorate - Field Blank Data Qualification Summary - SDG 01-5003

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: July 19 through July 31, 2001

LDC Report Date: September 12, 2001

Matrix: Water

Parameters: Chromium

Validation Level: EPA Level IV

Laboratory: Advanced Technology Laboratories

Sample Delivery Group (SDG): 4990

Sample Identification

MW-22-2
MW-22-1
ER-22
MW-8
ER-11
MW-11-3
MW-11-2
MW-11-1
ER-12
MW-12-3
MW-12-2
MW-12-1
ER-24
MW-24-4
MW-24-3
MW-24-3D
MW-24-2
MW-24-1
FIELD BLANK
ER-4
MW-4-5
MW-4-4
MW-4-3
MW-4-2
MW-4-1
ER-14
MW-14-4
MW-14-3
MW-14-2
MW-14-2D
MW-14-1
ER-23
MW-23-4
MW-23-3
MW-23-2
MW-23-1
MW-8MS
MW-8MSD
MW-8DUP
ER-4DUP
MW-14-3MS
MW-14-3MSD
MW-14-3DUP
MW-23-1DUP

Introduction

This data review covers 44 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 200.8 for Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial and continuing blanks (ICB/CCBs) was based on the maximum contaminant concentration in the ICB/CCBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial and continuing blanks.

Samples ER-22, ER-11, ER-12, ER-24, ER-4, ER-14, and ER-23 were identified as equipment rinsates. No chromium contaminants were found in these blanks.

Sample "FIELD BLANK" was identified as a field blank. No chromium contaminants were found in this blank.

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check was not required by the method.

V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Internal Standard (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not required by the method.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

Samples MW-24-3 and MW-24-3D and samples MW-14-2 and MW-14-2D were identified as field duplicates. No chromium was detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-14-2	MW-14-2D	
Chromium	5.3	5.0U	200

JPL, 00HW019
Chromium - Data Qualification Summary - SDG 4990

No Sample Data Qualified in this SDG

JPL, 00HW019
Chromium - Laboratory Blank Data Qualification Summary - SDG 4990

No Sample Data Qualified in this SDG

JPL, 00HW019
Chromium - Field Blank Data Qualification Summary - SDG 4990

No Sample Data Qualified in this SDG

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: JPL, 00HW019

Collection Date: July 5 through July 16, 2001

LDC Report Date: September 12, 2001

Matrix: Water

Parameters: Chromium

Validation Level: EPA Level IV

Laboratory: Advanced Technology Laboratories

Sample Delivery Group (SDG): 4730

Sample Identification

MW-18-4
MW-18-3
MW-18-2
ER-18
MW-17-4
MW-17-3
MW-17-2
ER-17
MW-10
MW-10-D
MW-20-5
MW-13
MW-6
MW-5
MW-5-D
MW-16
MW-16-D
MW-3-4
MW-3-3
MW-3-2
ER-3
MW-20-4
MW-20-3
MW-20-2
MW-20-1
ER-20
MW-10-DDUP
MW-13MS
MW-13MSD
MW-13DUP
MW-6MS
MW-6MSD
MW-6DUP

Introduction

This data review covers 33 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 200.8 for Chromium.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification flags is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from specified protocols or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable.

Data qualification by the initial and continuing blanks (ICB/CCBs) was based on the maximum contaminant concentration in the ICB/CCBs in the analysis of each analyte. No contaminant concentrations were found above the reporting limit in the initial and continuing blanks.

Samples ER-18, ER-17, ER-3, and ER-20 were identified as equipment rinsates. No chromium contaminants were found in these blanks.

IV. ICP Interference Check Sample (ICS) Analysis

ICP interference check was not required by the method.

V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-13MS/MSD (All samples in SDG 4730)	Chromium	79 (80-120)	-	-	J (all detects) UJ (all non-detects)	A

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Internal Standard (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution was not required by the method.

XI. Sample Result Verification

All sample result verifications met validation criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report.

XIII. Field Duplicates

Samples MW-10 and MW-10-D, samples MW-5 and MW-5-D, and samples MW-16 and MW-16-D were identified as field duplicates. No chromium was detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD
	MW-10	MW-10-D	
Chromium	16	20	22

Analyte	Concentration (ug/L)		RPD
	MW-16	MW-16-D	
Chromium	130	99	27

JPL, 00HW019
Chromium - Data Qualification Summary - SDG 4730

SDG	Sample	Analyte	Flag	A or P	Reason
4730	MW-18-4 MW-18-3 MW-18-2 ER-18 MW-17-4 MW-17-3 MW-17-2 ER-17 MW-10 MW-10-D MW-20-5 MW-13 MW-6 MW-5 MW-5-D MW-16 MW-16-D MW-3-4 MW-3-3 MW-3-2 ER-3 MW-20-4 MW-20-3 MW-20-2 MW-20-1 ER-20	Chromium	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

JPL, 00HW019
Chromium - Laboratory Blank Data Qualification Summary - SDG 4730

No Sample Data Qualified in this SDG

JPL, 00HW019
Chromium - Field Blank Data Qualification Summary - SDG 4730

No Sample Data Qualified in this SDG